

# Energy Smart™ Lamps

Compact Fluorescent Lamps Integrated  
9W, 11W, 15W and 20W

## Product information

"At last the new energy saving lamp that everyone's been waiting for..." – the CFL Energy Smart™ lamps combine the desired shape of traditional GLS light bulbs with the efficiency benefits of compact fluorescent. Besides its true GLS look a like shape, that is only available from GE, Energy Smart™ lamps provide excellent light quality, fast warm up and contain eco-friendly components for a better environment.

## Features

Compact Fluorescent Lamps (CFL) have an important role to play in the future of lighting, helping to protect the environment by using less energy and creating less CO<sub>2</sub> emissions. In addition, CFL lamps contribute to the reduction of maintenance costs, ensuring that financial benefits are enjoyed alongside environmental benefits.

There are a variety of performance advantages afforded by GE Lighting CFL lamps. They use almost 80% less energy and last ten times longer than their incandescent predecessors, are rated energy class 'A' and offer high quality light.

With continuing technological advancements and miniaturisation, today's Energy Smart™ lamps are similar to the incandescent lamps that they replace to ensure that they are discreet – yet high performing.

- 10,000 hours life
- T2 tube inside
- Instant light on and fast warm-up
- Low mercury content < 1 mg
- Eco friendly components no plastic base
- 'A' energy class



## Application areas

Energy Smart™ lamps are recommended for general indoor and outdoor applications such as:

- Home lighting
- Retail lighting
- Hotels
- Restaurants
- Corridors, hallways
- Gardens, courtyards

## Product range

Energy Smart™ lamps are available in a range of:

- 9, 11, 15 and 20 wattages
- E27 and B22 caps
- Warm (3000K) and Daylight (6500K) colours
- Box and blister packs



GE imagination at work

# Compliance

## Standards

- IEC 60061-1: Lamp caps and holders together with gauges for the control of interchangeability and safety
- IEC or EN 60969: Self ballasted lamps for general lighting services – performance requirements
- IEC or EN 60968: Self-ballasted lamps for general lighting services – safety requirements
- EN 50285: Energy labelling of household lamps
- CIE S 009/E:2002: Photobiological safety of lamps and lamp systems
- EN 61547: Requirement for general lighting purposes – EMC immunity requirement
- EN 55015 or CISPR 15: Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
- EN 61000-3-2: Electromagnetic compatibility (EMC) – Part 3-2: Limits – limits for harmonic current emissions (equipment input current up to and including 16A per phase)
- EN 61000-3-3: Electromagnetic compatibility (EMC) – Part 3-3: Limits – limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current up to 16A

## European Directives:

- Safety: Low Voltage (LVD) 2006/95/EC
- Electromagnetic Compatibility: (EMC) 2004/108/EC
- RoHS: Directive 2011/65/EC on Restrictions of the use of certain Hazardous Substances (RoHS)
- ErP household: Directive 2009/125/EC on ecodesign requirements (of Energy-related Products) and its Implementing Measure for non-directional Household Lamps: 244/2009/EC
- Energy Labelling: Commission Directive 98/11/EC of 27 January 1998 implementing Council Directive 92/75/EEC with regard to energy labelling of household lamps
- WEEE: Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE)
- REACH: Commission Regulation 453/2010/EC on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

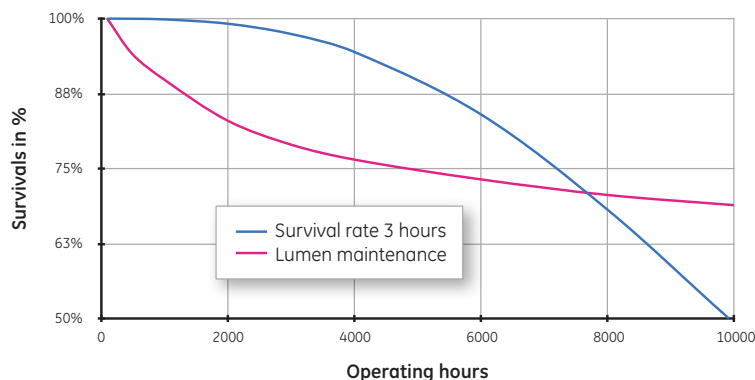
## Basic data

Rated* Wattage [W]	Volts [V]	Cap	Product Description	Product Code Box pack	Product Code Blister pack	Rated* Lumen [lm]	CCT [K]	CRI [Ra]	Rated* Life [h]	Length [mm]	Diameter [mm]	EEC	Pack Qty	EuP Inca Watt Equivalent
9,0	220-240	E27	FLE9AG/T2/830/E27	77368	97034	450	3000	80	10,000	115	60	A	6	41
9,0	220-240	B22	FLE9AG/T2/830/B22	78233	97041	450	3000	80	10,000	117	60	A	6	41
9,0	220-240	E27	FLE9AG/T2/865/E27	78686	97042	450	6500	80	10,000	115	60	A	6	41
11,0	220-240	E27	FLE11AG/T2/830/E27	77367	97044	590	3000	80	10,000	115	60	A	6	50
11,0	220-240	B22	FLE11AG/T2/830/B22	78234	97045	590	3000	80	10,000	117	60	A	6	50
11,0	220-240	E27	FLE11AG/T2/865/E27	78687	97052	532	6500	80	10,000	115	60	A	6	46
15,0	220-240	B22	FLE15AG/T2/830/E27	77366	97053	800	3000	80	10,000	117	60	A	6	64
15,0	220-240	E27	FLE15AG/T2/830/B22	78235	97054	800	3000	80	10,000	115	60	A	6	64
15,0	220-240	E27	FLE15AG/T2/865/E27	78688	97055	800	6500	80	10,000	115	60	A	6	64
20,0	220-240	E27	FLE20AG/T3/830/E27	77365	97056	1152	3000	80	8,000	137	67	A	6	86
20,0	220-240	B22	FLE20AG/T3/830/B22	78236	97057	1152	3000	80	8,000	139	67	A	6	86
20,0	220-240	E27	FLE20AG/T3/865/E27	78689	97058	1152	6500	80	8,000	137	67	A	6	86

\*Rated wattage, life and lumen are equivalent to nominal values, which are indicated on product packaging

## Survival rate and lumen maintenance

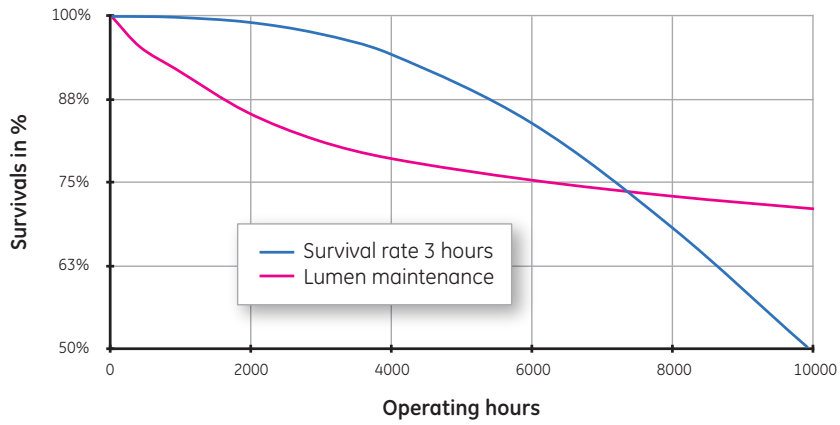
Life Expectancy and Lumen Maintenance  
Energy Smart™ 9W 10,000 hours



Test condition: 50Hz 230V 3 hours cycling - according to IEC60969

Hours	Survival rate 3 hours	Lumen maintenance
100	1.00	1.00
2,000	0.99	0.83
4,000	0.94	0.77
6,000	0.84	0.73
8,000	0.68	0.71
10,000	0.49	0.69

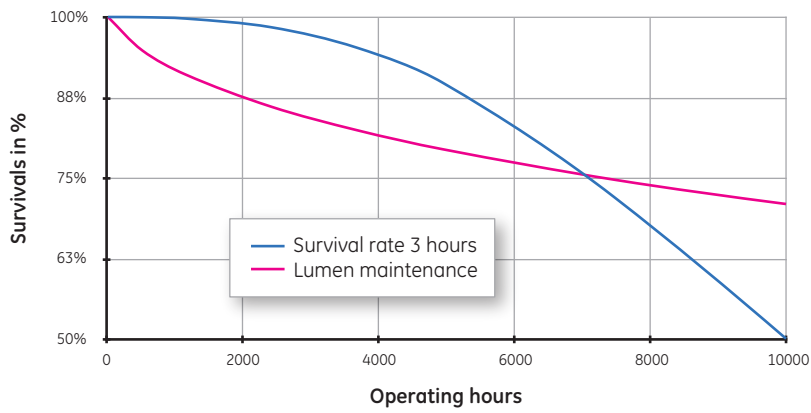
## Life Expectancy and Lumen Maintenance Energy Smart™ 11 and 15W 10,000 hours



Test condition: 50Hz 230V 3 hours cycling - according to IEC60969

Hours	Survival rate 3 hours	Lumen maintenance
100	1.00	1.00
2,000	0.99	0.86
4,000	0.94	0.79
6,000	0.84	0.75
8,000	0.68	0.73
10,000	0.50	0.71

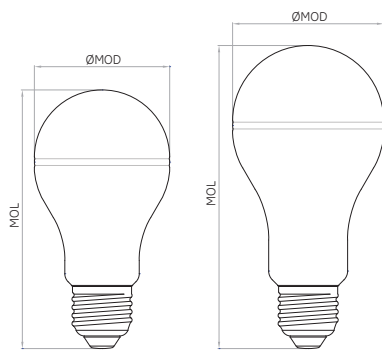
## Life Expectancy and Lumen Maintenance Energy Smart™ 20W 8,000 hours



Test condition: 50Hz 230V 3 hours cycling - according to IEC60969

Hours	Survival rate 3 hours	Lumen maintenance
100	1.00	1.00
2,000	0.98	0.86
4,000	0.90	0.79
6,000	0.72	0.75
8,000	0.50	0.71

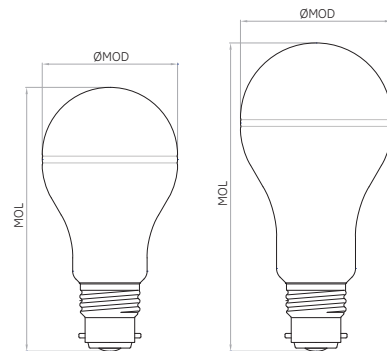
## Dimensions



9/11/15W

20W

E27 cap		
	MOL [mm]	MOD [mm]
9W	115	60
11W	115	60
15W	115	60
20W	137	67

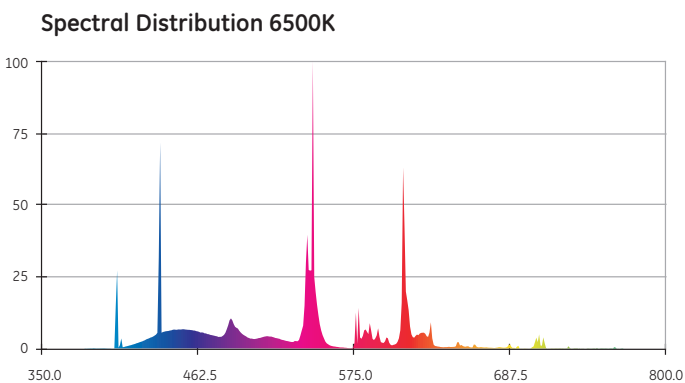
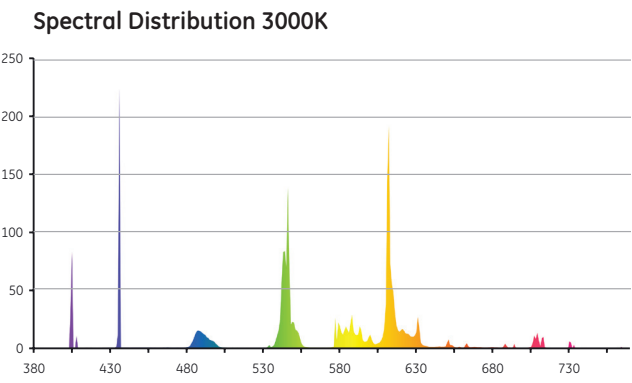


9/11/15W

20W

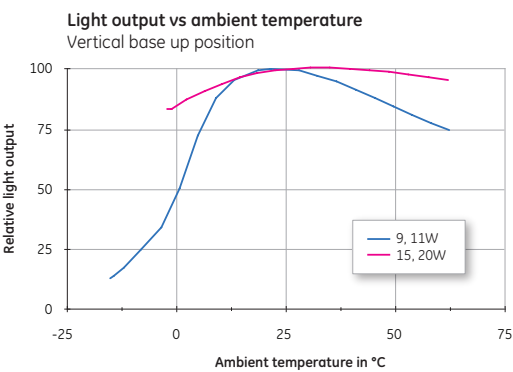
B22 cap		
	MOL [mm]	MOD [mm]
9W	117	60
11W	117	60
15W	117	60
20W	139	67

# Spectral power distribution



## Influence of ambient temperature on light output

Photometrical and light parameters of a fluorescent lamp depend on the mercury vapor pressure inside the lamp. Mercury vapor pressure in turn is controlled by temperature. When installed in a luminaire, the temperature of the air surrounding the lamp cap changes and this can affect the light output of the lamp. The effects of changes in ambient temperature for a typical lamp are shown on the graph.



## Operating temperature limit

Lamp surface temperature in any application shall not exceed maximum temperature values specified.

Location		Max temperature value
P1	Between plastic housing and collar	95°C

Lamp measured in vertical base up position, between the cathodes.



## Additional information – EuP Compliance



**EU Regulations:** GE Lighting’s CFL lamps are all compliant with WEEE (Waste Electrical and Electronic Equipment), RoHS (Reduction of Hazardous Substances) and EuP (Energy Using Products) directives and are available in compliant packaging.



**Incandescent watt equivalence:** select the preferred wattage to enjoy the same light output as the original incandescent bulb while at the same time achieving significant energy savings. The Basic Data table and the updated EuP packaging include the CFL-Incandescent wattage equivalences according to the new EuP luminous flux standards.



**Starting time:** the time needed for the lamp to start fully and remain alight. GE Lighting’s CFL lamps are usually instant light on. Starting categories are: instant on (<0.3sec), quick (0.3-1sec), standard (1-1.5sec).  
**Energy Smart™ starting time: instant**



**Warm-up:** GE Lighting’s CFL lamps are usually characterised by fast warm-up times. Warm-up categories at 60% lumen are: fast (<30sec), standard (30-60sec) and slow (60-120sec).  
**Energy Smart™ 9-11W: fast warm-up (<30sec); Energy Smart™ 15-20W: slow warm-up (<120sec)**

Hg  
0.9mg

**Mercury content:** GE Lighting's CFL lamps contain a minimised level of mercury, some of our best-in class lamps as low as 0.9mg vs. the max. 5.0mg allowed by RoHS.

**Energy Smart™: mercury content 0.85mg**

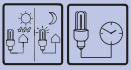
ON  
OFF  
x20 000

**Switching cycle:** switching endurance is a minimum 3000 cycles based on official EU standard – one minute on, three minutes off.

**Energy Smart™ 9-11-15W switching cycle: 5,000; Energy Smart™ 20W switching cycle: 4,000**



**Dimming:** not recommended to use with dimmers.



**Timer, photo cell circuits:** not suitable for use with electronically switched devices. Please refer to the device instructions.

Power  
Factor

**Power Factor:** ratio of the measured active input power to the product of the supply voltage (r.m.s.) and the supply current (r.m.s.). measures how efficiently the current is being converted into real power. Lamps of power factor >0.9 are referred to as High Power Factor lamps, below that as Low Power Factor lamps. All CFL lamps above 25 watts sold in EU need to be High Power Factor lamp. **Energy Smart™ power factor: >0.5**



**Ambient temperature range:** temperature at which a lighting product can be safely used and can meet the claimed rated life. Outside of this temperature range, the product might still operate, although the life could be reduced. **Energy Smart™ ambient operating temperature range: -20-50°C**



**Minimum starting temperature:** the lowest temperature condition at which the product can reliably start at within 3sec at 230V.

**Energy Smart™ minimum starting temperature: -20°C**

220-240V  
50Hz

**220-240V 50Hz:** all lamps operate on 220-240 Volt (-10%; +6%), 50 Hertz



**Enclosed fixture:** usage in enclosed fixture may reduce life. Not recommended in totally enclosed fixture.



**Website:** instructions on how to dispose of lamps at end of life or in the case of accidental lamp breakage are available on the GE Lighting website.